

**A new subfamily from Gorong, Seram, Moluccas,
with the description of *Renaudcypris* new genus
(Crustacea, Ostracoda)**

by K. G. McKENZIE *

Résumé. — Le genre *Renaudcypris* nouveau genre est signalé pour la première fois à Gorong. Les caractères de ce genre imposent la création d'une nouvelle sous-famille. L'importance de cette découverte est discutée.

Abstract. — The genus *Renaudcypris* n. gen. is described for the first time from Gorong. The characters of this genus indicate a placement into a new subfamily. The significance of this record is discussed.

Among the collections made by Th. MONOD during his Rumphius II expedition to Indonesia, the interstitial faunas were sorted and identified to groups by J. RENAUD-MORNANT. An opportunity to examine Ostracodes from these collections arose during a working visit to RENAUD-MORNANT's laboratory in November 1978. The most abundant Ostracode was very distinctive. In spite of some deterioration in the carapace due to weak acidity of the preserving medium, it soon became obvious that a new generic taxon was indicated, even a new subfamily. Subsequent searches of the literature have confirmed this initial judgement. Therefore, the genus *Renaudcypris* and subfamily *Renaudcyprinae* are here described for the first time.

OSTRACODA Latreille, 1806

Order *PODOCOPA* Sars, 1866

Superfamily *CYPRIDACEA* Baird, 1845

Family *PARACYPRIDIDAE* Sars, 1923

Subfamily *RENAUDCYPRINAE* n. subfam.

DIAGNOSIS : A subfamily of Paracyprididae characterised by a spinose subquadrate carapace, the valves of which are slightly depressed anterodorsally near the eye region ; and a soft anatomy

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which includes antennal natatory setae reaching to the ends of the antennal claws ; an elongate maxillule palp ; a stout end claw on the terminal segment of the third thoracic limb (P III) ; rather short, curved furcal rami each bearing two posterior bristles as well as an anterior bristle and two powerful pectinated terminal claws. In males, the clasping palps of the right and left first thoracic limbs (P I) are similar, i.e. not dimorphic ; the Zenkers Organ has 5 inner chitinrosettes ; and in the hemipenes, the tubes of the testes form near circles which open dorsally.

DISCUSSION

McKENZIE (1979) in a recent review of Paracyprididae defined it as comprising the subfamilies Paracypridinae, Thalassocypridinae and Cyclocypridinae ; and subsequently GHETTI and McKENZIE (1979) upgraded Cyclocypridinae to a separate family. The new subfamily is characterised in part by long natatory setae on the antennae. Even so, the setae are not as long as in Cyclocyprididae in which they typically extend far beyond the antennal claws but are similar in length to those of many Thalassocypridinae (KEYSER, 1976). In other characters, the soft anatomy is paracypridid-like. Thus, as with most other paracypridids, the maxillule palp in *Renaudocypris* is elongate and the respiratory epipod of this limb has about 20 "Strahlen" and 3 downwards-directed setae ; the P I in males is two-segmented and non-dimorphic ; the P II is elongate with a long terminal claw ; the P III has a strong terminal claw (similar to *Paracypris*) ; the furca has two posterior bristles (versus one in all Cyclocyprididae) and the hemipenes are not beaked (they are in cyclocypridids).

From thalassocypridines, the new subfamily is readily distinguished by its spinose, subquadrate carapace and the different end claw of the P III ; from paracypridines it can be differentiated again by its carapace and by the long antennal natatory setae (which are short in paracypridines).

Genus **RENAUDCYPRIS** n. gen.

ETYMOLOGY : For J. RENAUD-MORNANT and generic suffix-cypris. The gender is feminine.

TYPE SPECIES : *Renaudocypris gorongae* n. sp.

LOCALITY : Gorong Island, beach with fresh water rivulet. Coralline sand and algal fragments. 1/25/1975, coll. Th. MONOD.

DIAGNOSIS : A renaudcypridine genus characterised by its spinose subquadrate carapace and a soft anatomy as noted above.

DISCUSSION

Refer to discussion of the subfamily, and also to conclusions.

***Renaudecypris gorongae* n. sp.**

(Fig. 1-23)

ETYMOLOGY : For Gorong, the collection locality.

DESCRIPTION

Carapace of medium size (about 0.55-0.60 mm in males and 0.60-0.65 mm in females) ; subquadrate ; anterior more broadly rounded than the posterior ; dorsum relatively straight trending obliquely downwards to the rear from its highest part anteromedially, slightly depressed (concave) in front of this highest part ; venter almost straight, weakly inflexed medially ; surface considerably affected by the preserving medium but apparently punctate and covered with spiky hairs ; colour in life unknown ; greatest height anteromedial and over 55 % of the length. In dorsal view subelliptical, anterior more narrowly rounded than the posterior, greatest breadth medial and less than half the length. Internally, lamellae moderately broad anteriorly and narrow posteroventrally ; line of concrescence narrow, except medioventrally ; anterior and posterior vestibules well developed ; selvage weak ; radial pore canals numerous, unbranched, shorter anteriorly and posteriorly than ventrally ; normal pore canals scattered, simple, some indicating the presence of a narrow rim ; hinge adont to weakly lophodont, the terminal elements being slightly expanded ; adductor muscle scars of cypridacean type, comprising a group of 4 large and 2 much smaller scars, plus 2 elongate mandibular scars and 2 small upper-frontal scars ; dorsal scars not observed.

Antennules 7-segmented ; length ratios of the segments 38 : 13 : 11 : 11 : 11 : 7 : 6 ; dorsal/ventral chaetotaxy of the segments 1/2, 1/0 (?), 0/1, 2/1, 2/1, 5/0 ; plus 2 long terminal natatory setae and a single shorter distal seta with a sensory tip ; the dorsal setae of the 4th, 5th and 6th segments are long and natatory. Antennae 5-segmented ; length ratios of the 3 endopod segments 4 : 2 : 1 ; ventral sensory bristle of the first endopod segment sutured medially ; natatory setae 7 in number, one short the other 6 about equally long and reaching to the tips of the terminal claws ; second endopod segment with 3 dorso-distal claw and the third endopod segment with a single terminal claw ; exopod comprising a single long bristle plus 1 or 2 very small bristles sited proximodorsally on the first endopod segment. Mandible coxales with 6 teeth, plus small anterior and posterior bristles, the anteriormost tooth is strong and simple, the second and third teeth are tricuspidate and the remaining 3 teeth are simple ; the coxal musculature makes it clear that this is a transverse-biting structure capable of some promotor-remotor movement ; endopod 4-segmented, length ratios of the segments 10 : 9 : 10 : 6.5 ; dorsal/ventral chaetotaxy of the endopod segments 0/3, 2/3, 4/3, plus 3 claw-like terminal bristles ; epipod obscured. Maxillules with palp elongate, two-segmented ; third lobe with 2 smooth tooth-like bristles ; epipod with about 20 Strahlen plus 3 downward-pointing setae. Maxillae (P I) in females with an unsegmented endopod bearing 3 short terminal setae ; epipod with 5-6 Strahlen ; exopod with about 12 strong food-forwarding bristles ; in males the palps (endopods) are modified into the typical 2-segmented cypridacean clasping organs and are not dimorphic (i.e. right and left palps are similar). Walking legs (P II) 5-segmented ; the first endopod segment finely hirsute ventrally ; terminal claw long and only slightly curved. Cleaning limbs

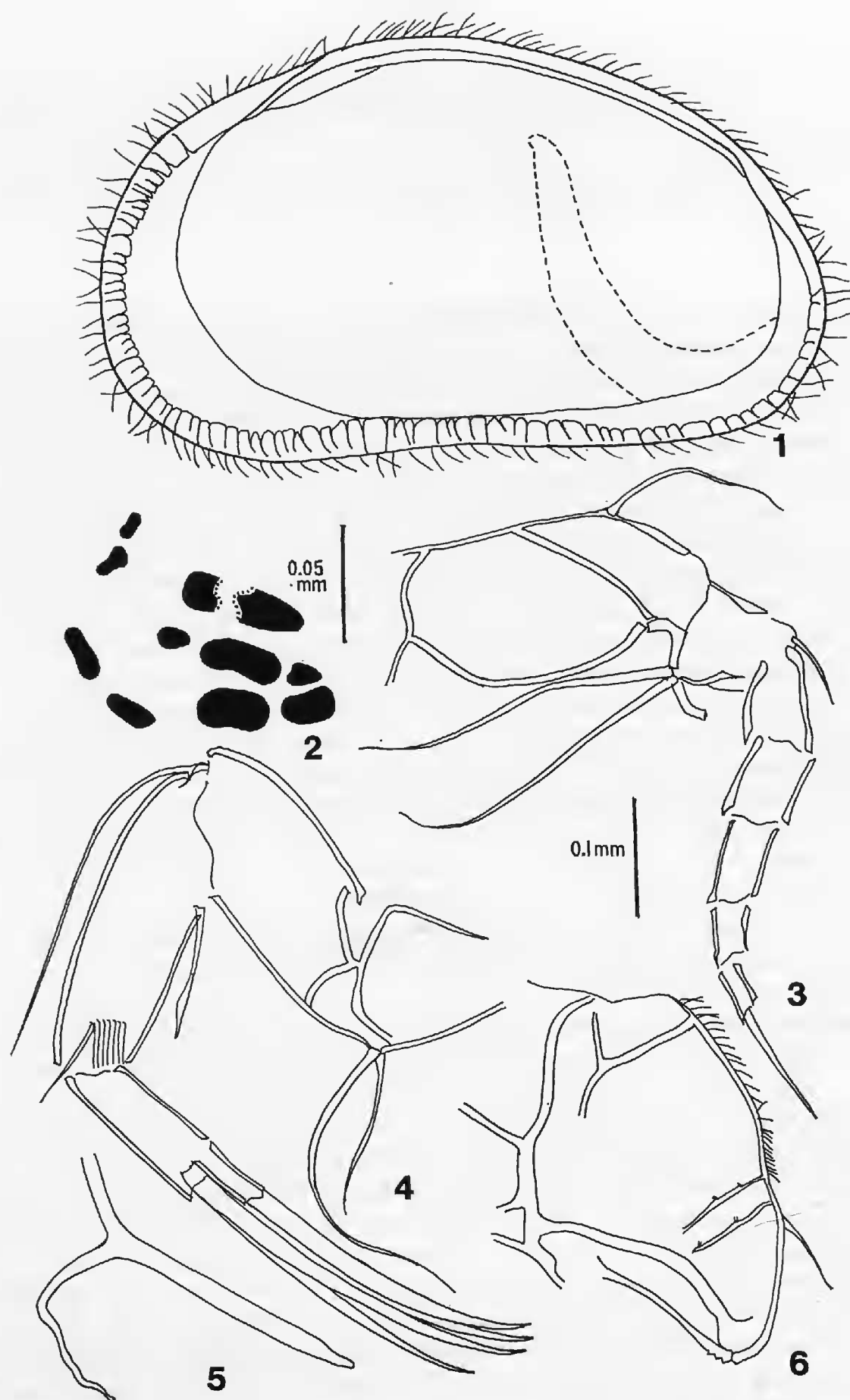


FIG. 1-6. — *Renaudocypris gorongae* n. gen., n. sp., female : 1, internal view RV ; 2, muscle scars ; 3, antennule ; 4, antenna ; 5, chitin support ; 6, labrum.

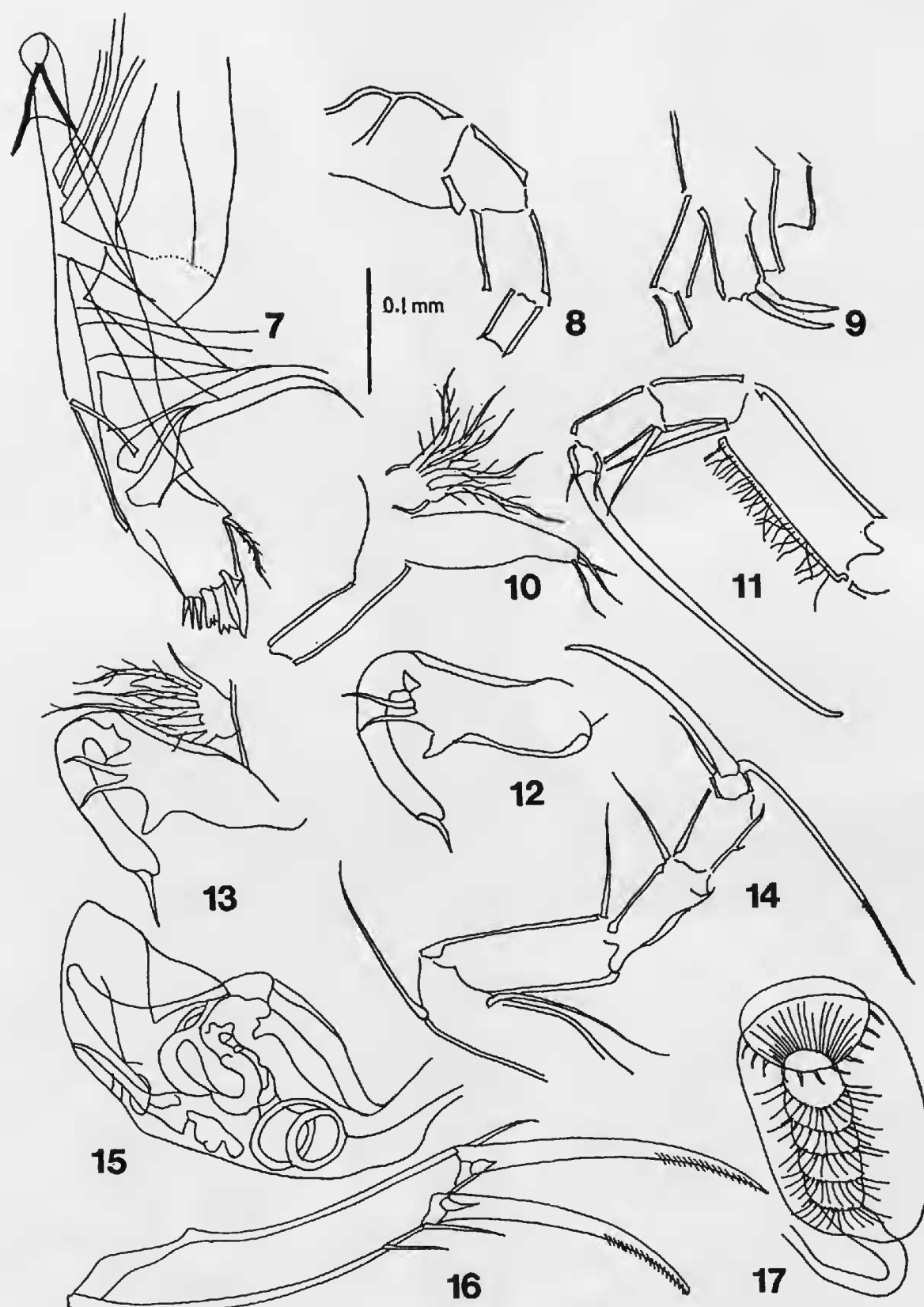


FIG. 7-11, 14, 16. — *Renaudcypris gorongae* n. gen., n. sp., female : 7, mandible coxale ; 8, mandible endopod (epipod obscured) ; 9, maxillule palp and lobes ; 10, maxilla (P I) ; 11, walking leg (P II), 14, cleaning limb (P III) ; 16, furca.

FIG. 12, 15, 17. — *Renaudcypris gorongae* n. gen., n. sp., male : 12, left palp P I ; 13, right palp P I ; 15, hemipenis ; 17, Zenkers organ.

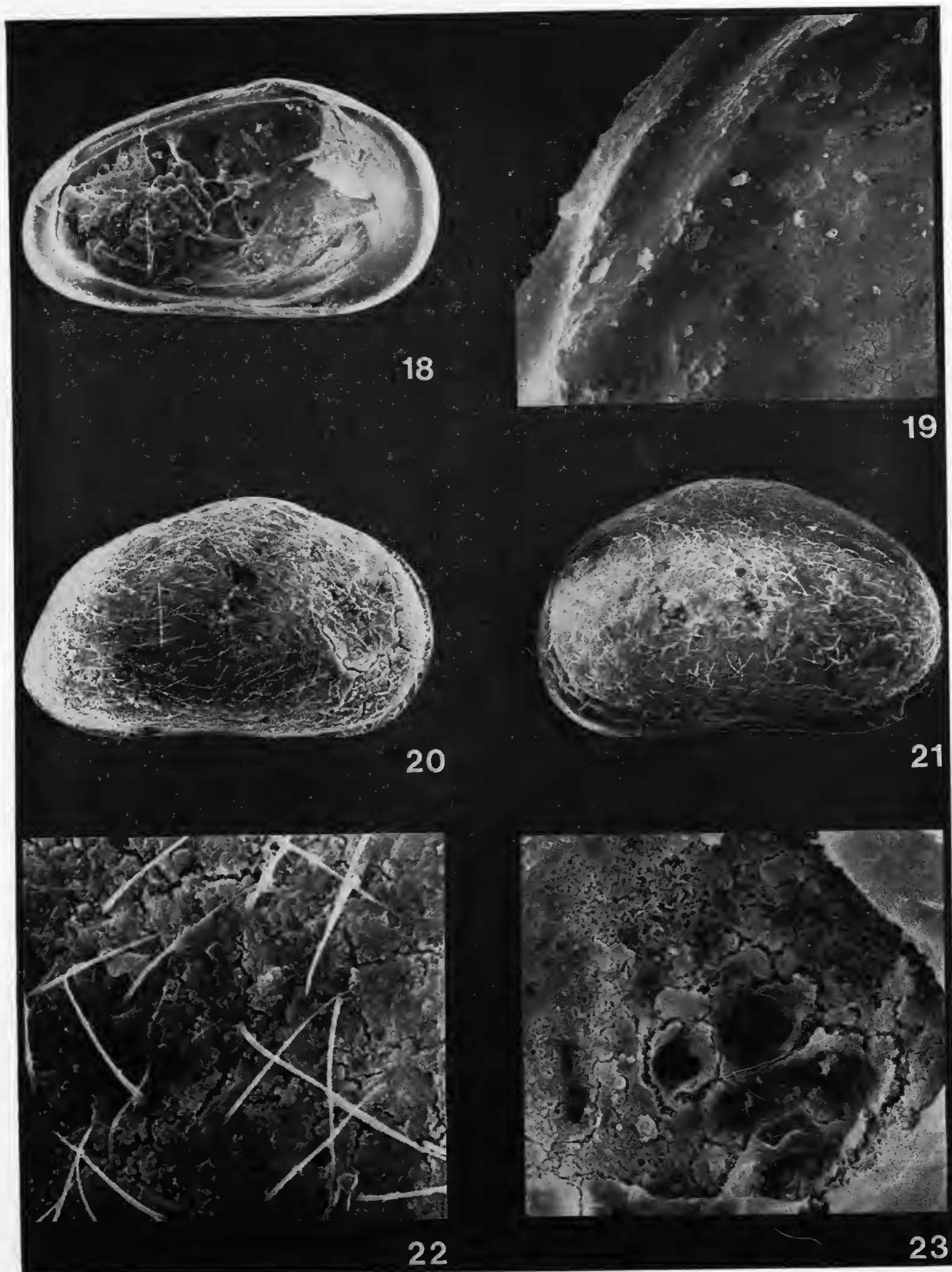


FIG. 18-23. — *Renaudcypris gorongae* n. gen., n. sp. : 18, internal view LV, male $\times 112$; 19, detail, anterior RV, female, $\times 450$; 20, external view RV, female, $\times 112$; 21, external view carapace, female, $\times 112$; 22, detail, surface hairs and normal pore canals, female, $\times 450$; 23, detail, muscle scars (slightly skewed), $\times 450$.

(P III) reflexed ; 4-segmented with the third segment sutured medially into approximately equal subsegments and each of these subsegments bearing a dorsodistal hook-like process ; the terminal segment with a slender moderately long reflexed seta, a strong but slightly shorter terminal claw and a short seta. Chitin supports with simple distal points ; forked proximally ; the anterior branch straight, the posterior branch strongly recurved. Furcal rami curved, short and thick, length : height ratio about 6 : 1 measured at the mid-length ; armature of 2 strong claws, the anterior claw a little longer, plus a short anterior bristle and 2 posterior bristles, the first of these posterior bristles longer than the second. Labrum simple, (?) serrate anteroventrally. Cups of the nauplius eye fused. Rake-shaped organs with 6-7 teeth. In males : Zenkers Organ with 5 inner chitinrosettes ; hemipenes with a pointed basal part and broad anterior process, the spirals of the testes tubes opening dorsally.

Dimensions : Holotype, female : length 0.62 mm, height 0.35 mm, breadth 0.29 mm ; paratype, male : length 0.57 mm, height 0.32 mm, breadth 0.26 mm.

ENVIRONMENTAL ASSOCIATIONS

The sediment associated with this population of *Renaudocypris gorongae* was analysed by J. RENAUD-MORNANT in her laboratory at Paris. The small sample comprised about equal parts by volume of algae and coralline sand, and only about 13 g of sand remained for analysis after removal of the algae. The results are given in Figure 24 and are consi-

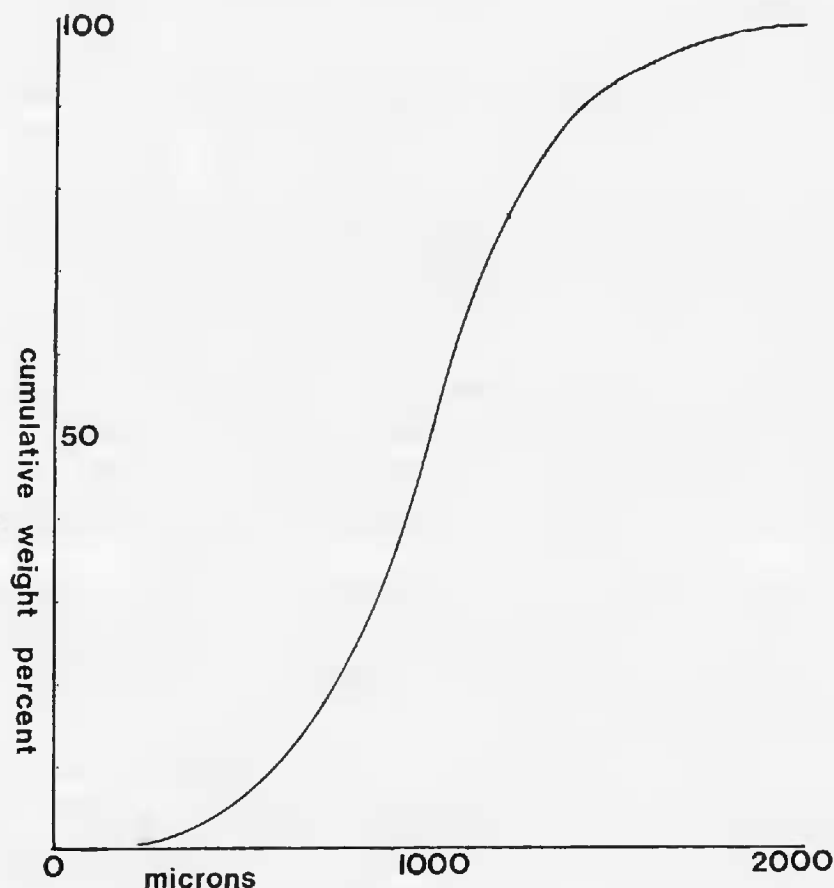


FIG. 24. — Cumulative weight percent curve for sediment sample with *Renaudocypris gorongae* n. gen., n. sp.

dered to be representative, although not accurate for the larger-sized grades because of the small sample. The cumulative weight percent curve indicates that the sample is coarse (median 1 000 μ) relatively well sorted, non-skewed and with a moderate kurtosis. Bearing in mind the lack of precision in the coarser grades, the interstices in a sand of this coarseness might well suffice to accommodate populations even of such relatively large animals as *Renaudocypris*.

The sample was collected near where a small stream ran to sea across the beach and it can be assumed, therefore, that *Renaudocypris* is able to tolerate fluctuations in salinity.

CONCLUSIONS

Several species of Ostracodes, which show relationships with *Renaudocypris gorongae* have been described from the general region. These species are : *Pontoparta rara* Vavra, 1901, from a swamp pool at Matupi, Bismarck Archipelago ; *Dolerocypris taalensis* Tressler, 1937, from Taal Lake near Wawa in southern Luzon, the Philippines ; *Mungava munda* Harding, 1962 ; *Pontoparta wolffi* Harding, 1962 and *Paracypris eleotridis* Harding, 1962, all from the slightly brackish (salinity 4.56 ‰) Lake Te-Nggano, Rennell Island in the Solomon Islands.

Of these species, *Pontoparta wolffi* clearly belongs in *Renaudocypris*. HARDING, in establishing the species, commented that it "... may at once be distinguished from the other species and indeed from other Candoninae by peculiarities of the 3rd limb which are sufficiently striking to suggest that a new genus should be erected..." (HARDING, 1962). In addition to this character, HARDING's species has an overall similar organisation to *R. gorongae* particularly with regard to the carapace shape, antennae, P IIs and furcae ; but there are differences in the respective hemipenes, male P Is and the lengths of furcal bristles which establish the two taxa as distinct species. These two species of *Renaudocypris* span Wallace's Line between the Australasian and Oriental regions.

The other taxa all belong in Thalassocypridinae. Of the four genera involved, *Paracypris* and *Pontoparta* are probably confined to the Australasian Region, notwithstanding records of *Pontoparta* from Egypt and Florida (HARDING, 1955 ; KEYSER, 1976) because these represent misidentifications — both authors acknowledge several significant differences between their species and *Pontoparta rara*. *Paracypris* s.s. is known from Chatham Island, off New Zealand, from Victoria, Australia, and from Rennell Island in the Solomon Islands. The numerous *Paracypris* species described from eastern Africa early in the century are now assigned to the cyclopyridid genera *Mecynocypris* and *Allocypris* (ROME, 1962).

On the other hand, good *Dolerocypris* and *Mungava* species have been recorded also from Florida and it seems reasonable, taking into account the dispersal patterns of cypridacean Ostracodes (McKENZIE, 1971), to assign them to a global circumtropical brackish fauna as suggested by KEYSER (1976).

Disregarding the globally dispersed species, there appear to be three loci for radiation of these closely related taxa, namely : the Wallace line between Indonesia and Australasia ; the Central American region, from Florida to Brazil ; and the East African Lakes System. In terms of current Plate Tectonics theory, each locus represents the outcome of a Neogene tectonic event of considerable biogeographic significance. Thus, radiation in the genera

Mecynocypris and *Allocypris* was favoured by movements along the Jordan, Red Sea, East Africa Rift which led to the formation of the East African Lakes each offering opportunities to many groups for speciation into the newly available niches. Similarly, the alternate opening and closing of the Central American corridor between the Nearctic and Neotropic Regions, which is now correlated with tectonic activity in the Caribbean, has become a classic case in the literature of evolution, due to the work of SIMPSON (1965). Paradoxically, the realisation that Wallace's Line demarcated two zoogeographical Regions (Australasian and Oriental) which did not impinge one upon the other until the Neogene, when the Australasian block collided against the Indonesian arc, has dawned only recently. This Neogene event, and the consequent faunal mixing, competition and selection, triggered the radiation and speciation in local shallow marine and brackish environments of which *Renaudocypris* is a typical example. In the strictest sense, therefore, *Renaudocypris gorongae* and *Renaudocypris wolffi* are endemic taxa which have evolved at a site which was reactivated (in an evolutionary sense) during the Neogene.

Acknowledgements

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Types are stored at the Muséum national d'Histoire naturelle, Paris; and some paratypes at the Australian Museum, Sydney.

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